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IN THE CLAIMS

1.   (Currently Amended) A system for matching colors on materials with different properties, comprising:

a display;

a data store that stores one or more digital representations of materials with different properties; and

a computer component programmed to execute a program embodied on a computer readable medium, the program being configured to:

receive spectrophotometric data;

access one or more digital representations from the data store;

generate one or more images by applying the spectrophotometric data to the one or more digital representations;

display the one or more images on the display;

receive colorimetric data associated with the one or more images displayed on the display; and

compute synthetic reflectance curves that ~~facilitates~~ facilitate matching colors on materials with different properties.

2.   (Original) The system of claim 1, where the spectrophotometric data is acquired from an actual physical sample colored to a desired color.

3.   (Original) The system of claim 1, where the display is a cathode ray tube display.

4.   (Original) The system of claim 1, where the data store is a database.

5.   (Currently Amended) The system of claim 1, where the computer component comprises a single computer.

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6.   (Currently Amended) The system of claim 1, where the computer <u>component</u> comprises two or more communicating, co-operating computer components.

7.   (Cancelled)

8.   (Currently Amended) A system for matching colors on materials with different properties, comprising:

a spectrophotometer;

a colorimeter;

a display;

an image data store that stores one or more digital representations of materials with different properties;

a computer component in data communication with the spectrophotometer, the colorimeter, the display, and the image data store, where the computer component is programmed to execute a program embodied on a computer readable medium, the program being configured to:

receive spectrophotometric data from the spectrophotometer;

access one or more digital representations from the image data store;

generate one or more images by applying the spectrophotometric data to the <u>one or more</u> digital representations;

display the one or more images on the display;

receive colorimetric data associated with the <u>one or more</u> images displayed on the display from the colorimeter; and

compute synthetic reflectance curves that ~~facilitates~~ <u>facilitate</u> matching colors on materials with different properties.

9.   (Original) The system of claim 8, comprising:

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a formula data store that stores one or more formulae for one or more colorants; and

a formulator that receives the synthetic reflectance curves and produces a formula for a colorant, where the formula that is produced is derived, at least in part, from a formula stored in the formula data store.

10.   (Original) The system of claim 9, where the colorant is one or more of an ink, a dye, a pigment, and a paint.

11.   (Currently Amended) A method for matching colors on materials with different properties, comprising:

acquiring spectrophotometric data;

acquiring a digital image of a first simulated substrate;

generating a first image to display, where the first image comprises the first simulated substrate colored according to the spectrophotometric data;

displaying the first image;

acquiring first colorimetric data associated with the first displayed image;

acquiring a digital image of a second simulated substrate;

generating a second image to display, where the second image comprises the second simulated substrate colored according to the spectrophotometric data;

displaying the second image;

acquiring second colorimetric data associated with the second displayed image;

comparing the first colorimetric data with the second colorimetric data; and

computing synthetic reflectance curves of a color that when employed to color the second simulated substrate ~~makes~~ make the display of the second simulated substrate substantially identical to the display of the first simulated substrate as colored with the spectrophotometric data.

12.   (Original) The method of claim 11, comprising: computing a formula for a .

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colorant, where the colorant, when applied to a second material, will make the second material appear to have substantially the same color as a first material.

13.   (Original) The method of claim 12, where the colorant is one or more of an ink, a dye, a pigment, and a paint.

14.   (Cancelled)

15.   (Currently Amended) A system for matching colors on materials with different properties, comprising:

    means for characterizing [[the]] a color of a physical reference sample;

    means for displaying a first simulation of the color of the physical reference sample;

    means for acquiring colorimetric data associated with the first simulation;

    means for generating a second simulation that represents a simulated substrate colored according to the characterizing of the color of the physical reference sample;

    means for displaying the second simulation;

    means for acquiring colorimetric data associated with the second simulation;

    means for comparing the colorimetric data associated with the first simulation and the colorimetric data associated with the second simulation; and

    means for producing spectral reflectance curves that resolves resolve color differences identified by the means for comparing.

16.   (Previously Presented) A set of application programming interfaces embodied on a computer readable medium for execution by a computer component in conjunction with a system that matches colors on materials with different properties, comprising:

    a first interface for communicating spectrophotometric data;

    a second interface for communicating colorimetric data; and

    a third interface for communicating synthetic spectrophotometric data,

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where the first interface, the second interface, and the third interface provide the computer component with access to the system that matches colors.

17.   (Cancelled)

18.   (Currently Amended) A computer readable medium containing an executable program that performs the steps of:

processing spectrophotometric data associated with a physical reference sample;

generating an image from a stored digital image of a substrate and the spectrophotometric data;

processing colorimetric data associated with two or more images generated from [[a]] said stored digital image of a substrate and the spectrophotometric data; and

generating synthetic reflectance curves that resolves resolve color differences between the two or more images.

19.   (Previously Presented) A data packet for transmitting color matching data between various computer components associated with matching colors on materials with different properties, comprising:

a first field that stores spectrophotometric data associated with a reference sample;

one or more second fields that store colorimetric data associated with digital images of substrates colored according to the spectrophotometric data; and

one or more third fields that store synthetic spectrophotometric data associated with resolving color differences between the colorimetric data.

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